

Translation

PATENT COOPERATION TREATY

PCT 10/518564

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

PCT/JP2003/007572



Applicant's or agent's file reference PNDF-03034	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2003/007572	International filing date (day/month/year) 13 June 2003 (13.06.2003)	Priority date (day/month/year) 20 June 2002 (20.06.2002)
International Patent Classification (IPC) or national classification and IPC H04B 7/10		
Applicant NEC CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 13 June 2003 (13.06.2003)	Date of completion of this report 30 March 2004 (30.03.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP2003/007572

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☐ the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the claims:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

- These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:
- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-13	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-13	NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims		NO

**2. Citations and explanations**

Document 1: CD-ROM of the specification and drawings annexed to the written application of Japanese Utility Model Application No. 24752/1992 (Laid-open No. 84884/1993) (Mitsubishi Electric Corp.), 16 November 1993

Document 2: JP 2002-135034 A (NEC Corp.), 10 May 2002

Document 3: JP 2001-332925 A (NEC Corp.), 30 November 2001

Document 4: JP 2001-272447 A (Koden Electronics Co., Ltd.), 5 October 2001

Document 5: JP 2001-251124 A (NEC Corp.), 14 September 2001

Claims 1, 4, 5, and 12

Document 1 (see paragraphs [0028] to [0033]) discloses an array antenna receiver device that performs a correction process, wherein values for the phase and amplitude of each antenna element are calculated, an antenna element for which said values exceed a given range is determined to have failed, said antenna element determined to have failed is placed in a non-operating state, and the correction process is carried out using the remaining antenna elements.

The array antenna receiver device disclosed in document 1 differs from the present application in that (1) a branch for which the SIR value of a received correction signal does not exceed a specified threshold value is not determined to have failed, and (2) correction is not performed separately for each receiving branch.

However, concerning the above point (1), an array antenna receiver device that performs a correction process, wherein a branch for which the SIR value of a received correction signal does not exceed a specified threshold value is determined to have failed is known in the art, as disclosed in document 2 (see paragraphs [0049] to [0071] and fig. 1), and thus, applying the constitution disclosed in document 2 in place of the failure detection constitution disclosed in document 1 is not recognized as posing any particular difficulty for a person skilled in the art.

Further, concerning the above point (2), an array antenna receiver device that performs a correction process, wherein the correction process is performed separately and independently for each of a plurality of receiving branches is known in this technical field, as disclosed in document 3 or document 5 (or in document JP 11-46180 A, disclosed in the prior art section of the present application (and which is also cited as prior art for documents 3 and 5)), for example, and thus, no particular difficulty is recognized.

Moreover, the present invention performs a separate correction process for each receiving branch using a means for storing a predetermined reference modulation result for each receiving branch, and a means for detecting a correction amount for amplitude/phase data based on the reference demodulation result, but when performing a separate correction process for each branch, it is sufficient that the invention detect the receiving status

of the correction signal input to each branch and calculate the correction amount, and thus, the determination of whether to calculate the correction amount by comparing the signal prior to input and the signal after it passes through the branch, as in a conventional correction process disclosed in the above documents, or by comparing a reference stored beforehand and the signal after it passes through the branch, as in the correction process of the present invention, is nothing more than a design feature fittingly determined by a person skilled in the art, and does not pose any particular difficulty.

Therefore, a person skilled in the art could easily conceive of the inventions described in claims 1, 4, 5, and 12 in the light of documents 1 to 3 and 5, and thus, said inventions do not involve an inventive step.

Claims 2, 3, 7, and 9

A feature wherein interference relative to a desired wavelength is taken into consideration and the correction signal power is set to a sufficiently low fixed power level, and a feature wherein the power level for an input correction signal is controlled according to the receiving status of the correction signal are disclosed in documents 3 and 5. Further, document 3 also discloses a feature wherein the correction cycle varies depending on receiving status.

Therefore, the invention described in claims 2, 3, 7, and 9 does not involve an inventive step.

Claims 6, 8, 10, and 13

An array antenna receiver device that performs a correction process, wherein the correction process is performed by supplying a correction signal on a time-division basis, is a conventional device (see document 4),

and constituting the array antenna receiver device disclosed in document 1 such that the correction process is performed on a time-division basis is not recognized as posing any particular difficulty.

Therefore, the inventions described in claims 6, 8, 10, and 13 do not involve an inventive step.

#### Claim 11

Document 2 also discloses a feature wherein error rate is taken into consideration rather than SIR (see paragraphs [0072] to [0077] and fig. 2).

Therefore, the invention described in claim 11 does not involve an inventive step.